



Interim Guidance about Marburg Virus Infection for Airline Flight Crews, Cargo and Cleaning Personnel, and Personnel Interacting with Arriving Passengers

This interim guidance is intended to assist commercial passenger airlines, cargo and charter carriers, and the Transportation Security Administration (TSA), Bureau of Customs and Border Protection (BCBP), and other relevant agencies in establishing appropriate precautions for Marburg virus infection. Recommendations are based on standard infection control practices and on available epidemiologic information about the Marburg virus.

Overview of Marburg Disease

Marburg hemorrhagic fever is caused by a virus (family Filoviridae, which includes Ebola virus) that occurs primarily in countries in East and Central Africa. Although the disease is rare, it has the potential for person-to-person spread, especially among health-care staff and family members or others who care for the patient. Transmission to humans may occur through direct contact with blood or body fluids (e.g., saliva, and urine) of an infected person or animal or through contact with objects that have been contaminated with the blood or other body fluids of an infected person. Spread of the virus between humans has occurred in settings of close contact* with infected persons, such as in hospitals.

The likelihood of contracting any viral hemorrhagic fever (VHF), including Marburg, is considered extremely low unless there has been travel to the affected area and direct contact with the body fluids of symptomatic infected persons or animals or with objects that have been contaminated with body fluids. The cause of fever in persons who have traveled or live in areas where VHF is present is more likely to be a common infectious disease, but such persons would need to be evaluated by a health-care provider to be sure.

Early symptoms of Marburg hemorrhagic fever include sudden fever, chills, and muscle aches. Around the fifth day after the onset of symptoms, a skin rash may occur. Nausea, vomiting, chest pain, sore throat, abdominal pain, and diarrhea may follow. Symptoms become increasingly severe and may include jaundice (yellow skin and eyes), severe weight loss, mental confusion, shock, and multi-organ failure.

The prevention of Marburg virus infection includes measures to avoid contact with blood and body fluids of infected individuals and with objects contaminated with these fluids (e.g., syringes).

When to See a Health-care Provider

Any personnel who think they have been exposed to Marburg virus either through travel, assisting an ill passenger, handling a contaminated package, or cleaning a contaminated aircraft should take the following precautions:

- Notify your employer immediately.
- Monitor your health for 10 days following the exposure. If you develop sudden fever, chills, muscle aches, rash, or other symptoms consistent with Marburg virus infection, you should seek immediate medical attention.

- Before visiting a doctor's office, alert the health-care provider, clinic, or emergency room in advance about the possible exposure to Marburg virus, so that arrangements can be made to prevent transmission to others in the health-care setting.
- When traveling to a health-care provider, limit your contact with others. All other travel should be avoided.

General Infection Control Precautions

Personnel should always follow basic infection control precautions to protect against any type of infectious disease. For information about these precautions see [IATA's Guidelines for Suspected Communicable Diseases](#).

Guidance for Airline Crews

Management of possible exposure to Marburg virus

Crew members on a flight with a passenger who is ill with a fever, jaundice, and/or bleeding and who is traveling from an area in which Marburg cases have been reported should follow these precautions:

- Keep the sick person separated from close contact* with others as much as possible.
- Provide the sick passenger with a surgical mask (if the passenger can tolerate wearing one) to reduce the number of droplets expelled into the air by talking, sneezing, or coughing.
- Tissues can be given to those who cannot tolerate a mask.
- Personnel should wear disposable gloves for direct contact with blood or other body fluids (see [IATA's Guidelines for Suspected Communicable Diseases](#)).
- The captain of an airliner bound for the United States is required by law to report to the nearest [U.S. Quarantine Station](#) any ill passengers who meet [specified criteria](#). The ill passenger should be reported before arrival or as soon as the illness is noted. Quarantine officials will help arrange for medical assistance to be available when the airplane lands and will work with the airline, state and local health department officials, and CDC headquarters to assist with medical transportation of the patient upon arrival, disease control and containment measures, passenger and crew notification, surveillance activities, and airline disinfection procedures.

If exposure occurs abroad

Airline flight crew should familiarize themselves with the symptoms of [Marburg hemorrhagic fever](#).

Personnel who think they have been exposed to Marburg virus and who develop symptoms during travel should take the following actions:

- Notify your employer for help in locating a health-care provider. Inform the employer about the possible exposure to Marburg virus, and ask about health-care options. If you become ill while outside the United States, the U.S. embassy or consulate can also provide names and addresses of local physicians.
- Before visiting a doctor's office, alert the health-care provider, clinic, or emergency room in advance about the possible exposure to Marburg virus so that arrangements can be made to prevent transmission to others in the health-care setting.
- When traveling to a health-care provider, limit your contact with others. All other travel should be avoided.

Guidance for Air Cargo Personnel

Packages should not ordinarily pose a risk to package delivery employees. Marburg virus is spread via direct contact with blood or body fluids (e.g., urine, saliva) from an infected individual.

- Packages visibly soiled with blood or body fluids should not be handled.
- Cargo handlers should wash their hands often for prevention of all infectious diseases (see [IATA's Guidelines for Suspected Communicable Diseases](#)).

Guidance for Airline Cleaning Personnel

Marburg virus is transmitted by close contact* with a person who has symptoms of Marburg infection. Once passengers have left an aircraft, the main source of infection will have been removed. However, infectious blood and/or body fluids that may remain on surfaces of the aircraft interior may pose a risk of infection if those particles come into direct contact with a person's eyes, nose, or mouth. Therefore, frequent hand washing is of primary importance for all personnel working on commercial passenger aircraft (see [IATA's Guidelines for Suspected Communicable Diseases](#)).

In addition, the captain of an airliner bound for the United States is required by law to report any ill passenger who meets specified criteria to the nearest [U.S. Quarantine Station](#). The airline's ground and cleaning crews should be notified at the same time so that preparations can be made for cleaning the aircraft after passengers have disembarked. When cleaning commercial passenger aircraft after a flight with a possible Marburg hemorrhagic fever patient, personnel should follow the precautions described below.

- Wear nonsterile disposable gloves while cleaning the passenger cabin and lavatories.
- Wipe down passenger lavatory surfaces and frequently touched surfaces in the passenger cabin, such as armrests, seat backs, tray tables, light and air controls, and adjacent walls and windows with an Environmental Protection Agency (EPA)-registered low- or intermediate-level chemical household germicide. Bleach can be used in the absence of an EPA-registered germicide. Areas of contamination with dried secretions should be washed with a 1% sodium hypochlorite solution (bleach) or hospital-approved disinfectant. Allow surfaces to air dry in accordance with manufacturers' instructions.
- Special cleaning of upholstery, carpets, or storage compartments is not indicated unless obviously soiled with fresh blood or body fluids. Body fluid or blood spills should be covered with a 1% sodium hypochlorite solution (bleach) and allowed to remain for 30 minutes prior to wiping.
- There currently is no evidence to suggest that special vacuuming equipment or procedures are necessary.
- Do not use compressed air, which might re-aerosolize infectious material.
- If a seat cover is obviously soiled with blood or body fluids, it should be removed and discarded by the methods typically used for contaminated items.
- Throw used gloves away according to the company's recommended infection control precautions, when cleaning is done and if they become soiled or damaged during cleaning .
- Clean hands with soap and water (or waterless alcohol-based hand rub when soap is not available) immediately after gloves are removed.

Guidance for Personnel Who Interact with Arriving Passengers

TSA, BCBP, and other personnel who interact with passengers arriving from areas affected by Marburg disease should keep in mind that the cause of fever in persons who have traveled or live in areas where VHF occurs is more likely to be a common infectious disease. However, personnel who have to detain or assist a passenger ill with a fever, jaundice (yellow skin and eyes), and/or bleeding should follow these precautions:

- Keep the ill passenger separated from the other passengers as much as possible. Personnel should immediately contact the appropriate authorities, such as the [U.S. Quarantine Station](#) with local jurisdiction and Emergency Medical Services.
- Provide the sick passenger with a surgical mask (if the passenger can tolerate wearing one) to reduce the number of droplets expelled into the air by talking, sneezing, or coughing.
- Tissues can be given to those who cannot tolerate a mask.
- Personnel should wear disposable gloves for direct contact with the ill person's blood or other body fluids (see [IATA's Guidelines for Suspected Communicable Diseases](#)).
- Clean hands with soap and water (or waterless alcohol-based hand rub when soap is not available) immediately after gloves are removed.

* Close contact is defined as having cared for or lived with a person known to have Marburg disease or having a high likelihood of direct contact with blood or body fluids of a Marburg patient. Examples of close contact include kissing or embracing, sharing eating or drinking utensils, close conversation (<3 feet), physical examination, and any other direct physical contact between persons. Close contact does not include activities such as walking by a person or briefly sitting across a room.

For more information about Marburg infections, see <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/marburg.htm>.

For information about hemorrhagic fevers and precautionary measures, see <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/disinfo.htm>.

For situational updates about outbreaks, see <http://www.who.int/csr/don/en/>.